

Figure 1a

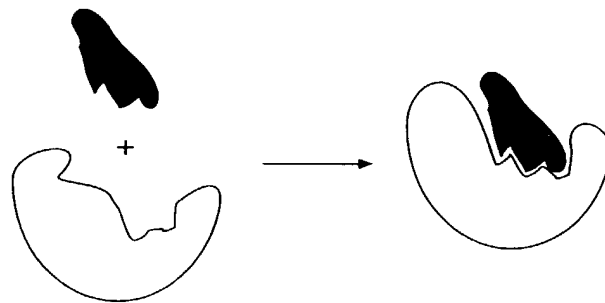


Figure 1b

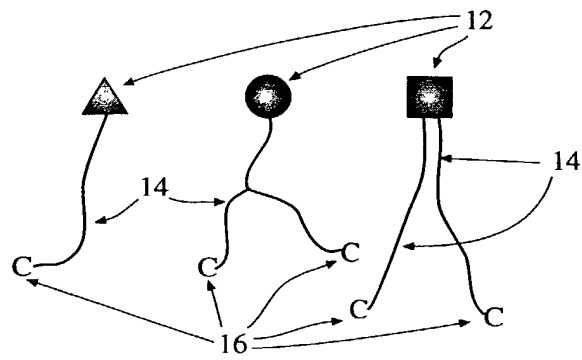


Figure 2(a)

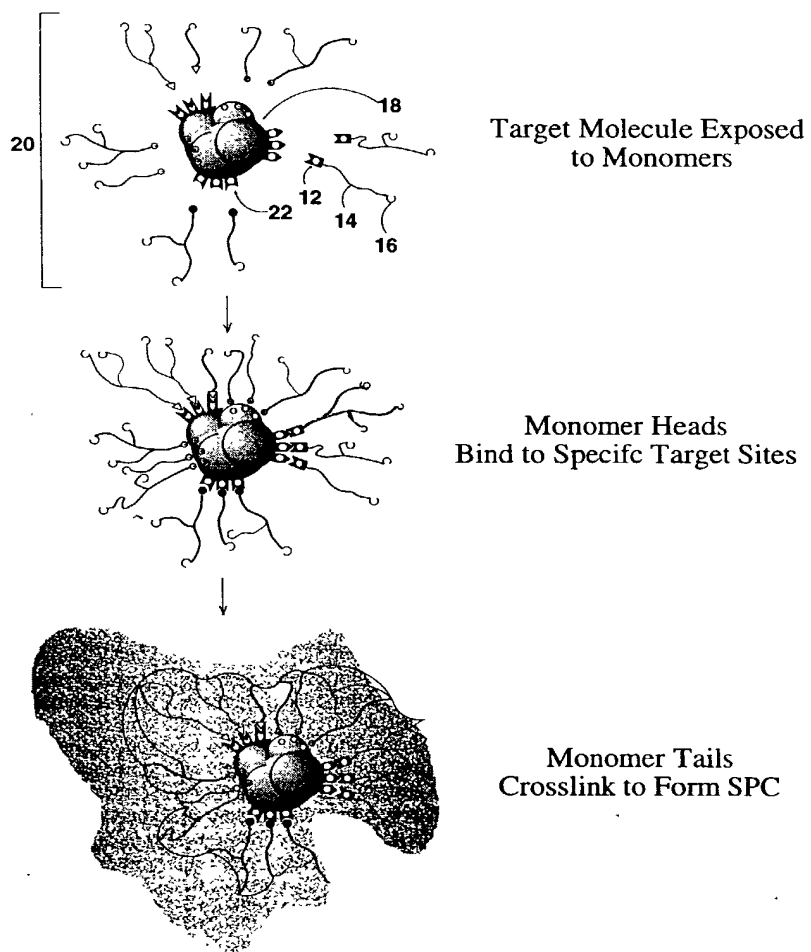
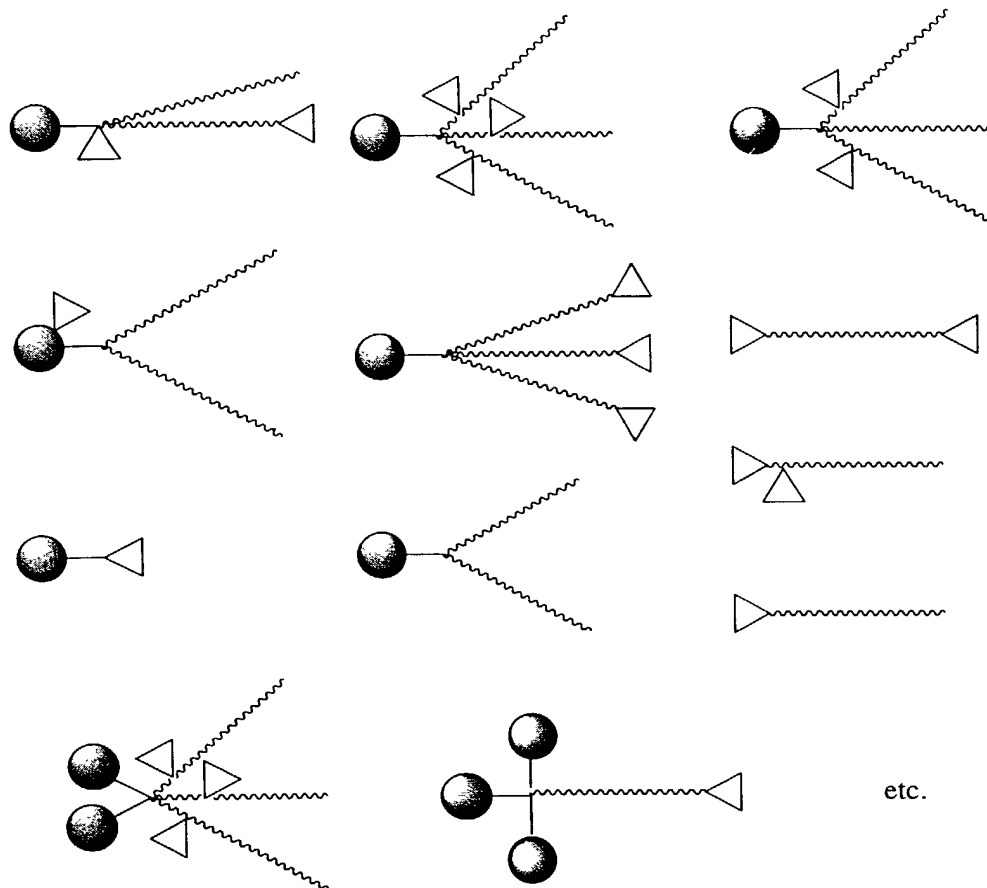


Figure 2b



etc.

### Key to Shapes



Head



Crosslinking  
moieties



Tail

Figure 2c

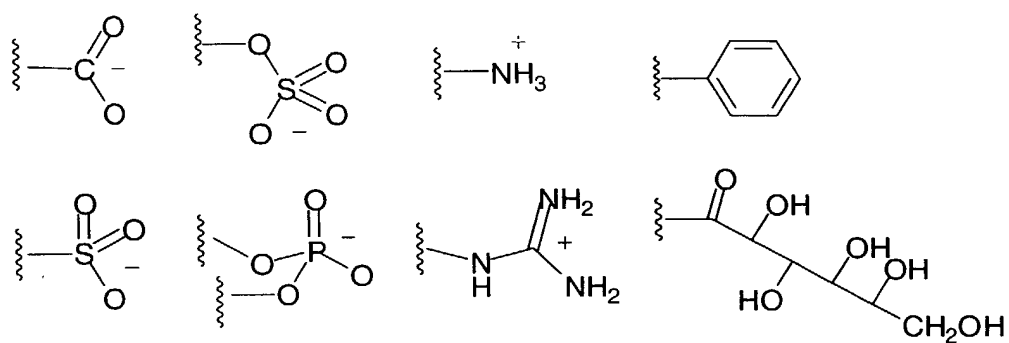


Figure 3

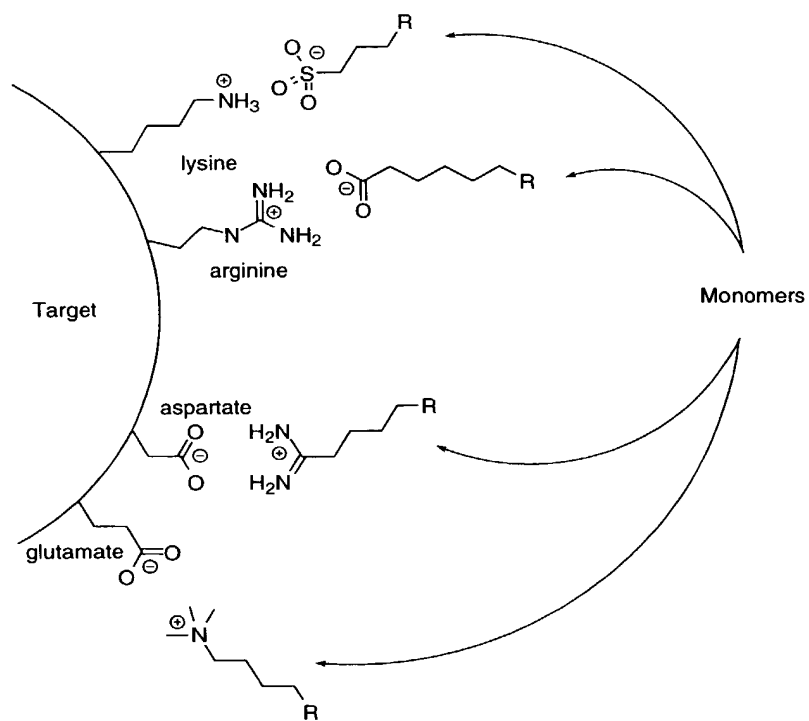


Figure 4

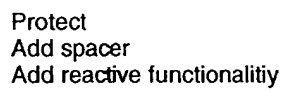
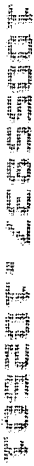
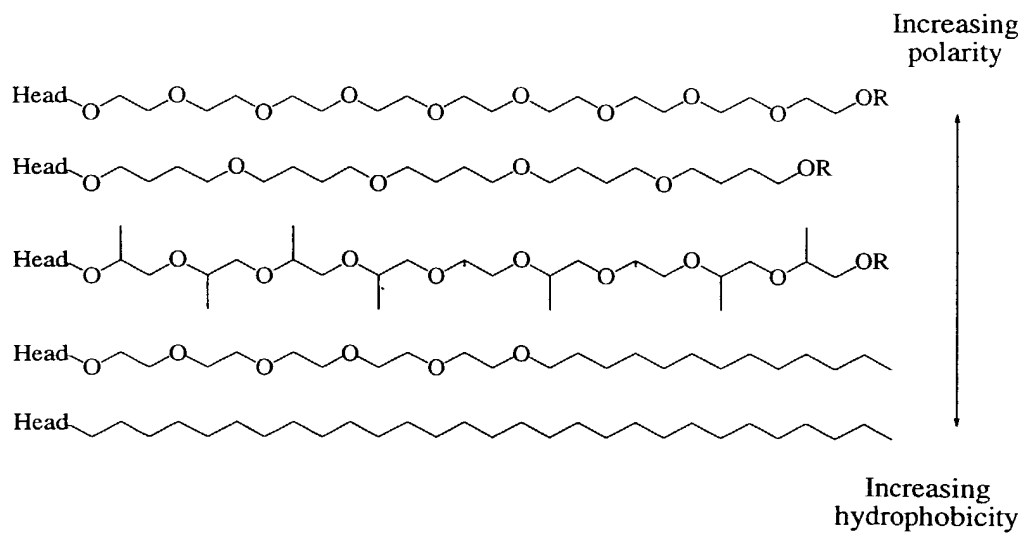


Figure 5



R = H or CH<sub>3</sub>. The polymerizable group may be attached at any point along the tail structure

Figure 6

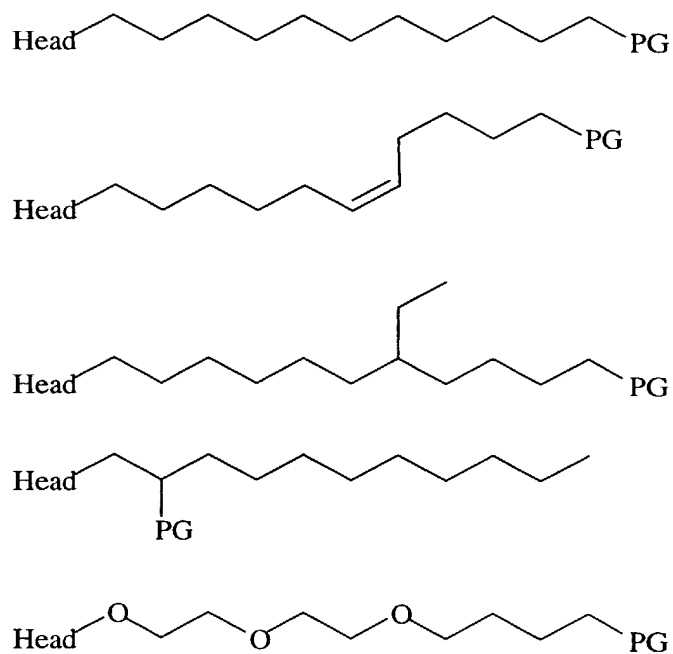
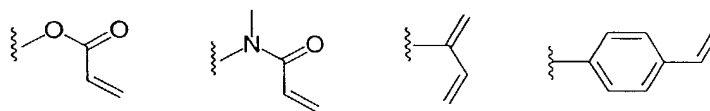


Figure 7



• Medium Polarity

• Low to No Polarity

Figure 8

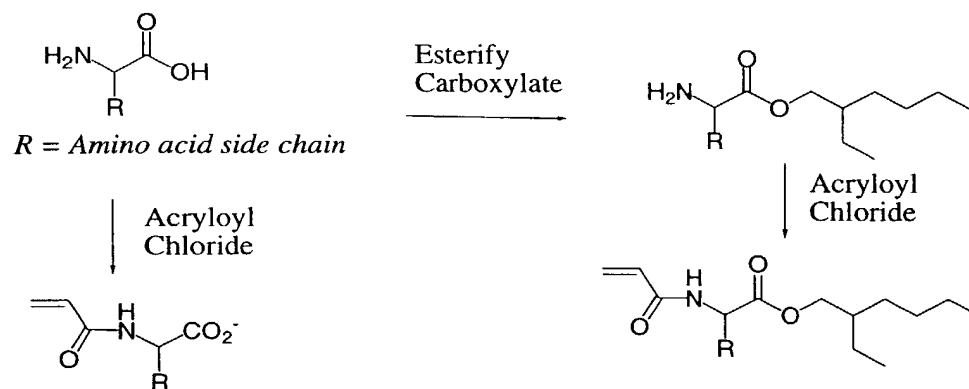
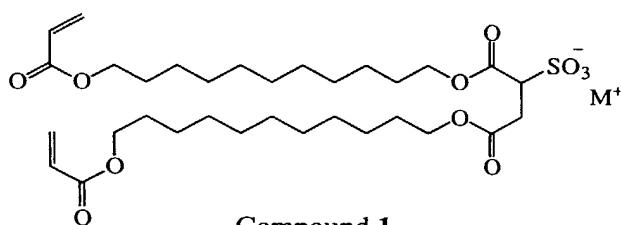
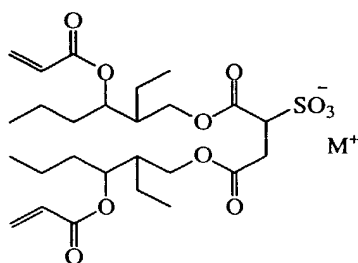


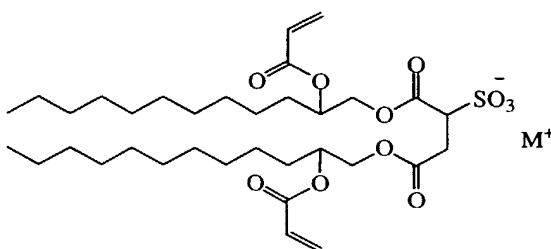
Figure 9



Compound 1



Compound 2



Compound 3

Figure 10

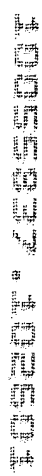
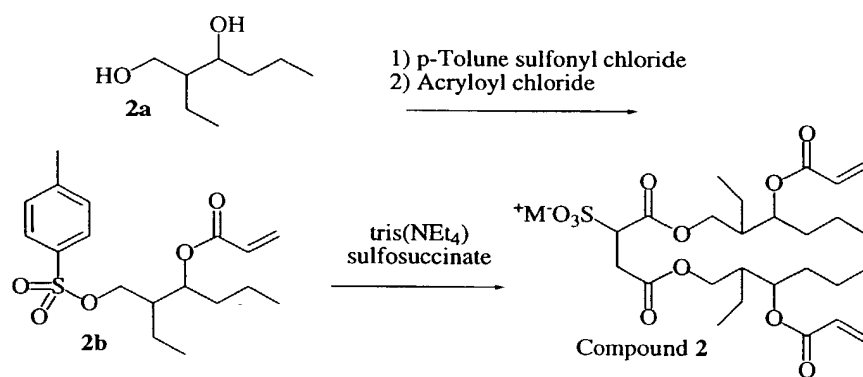
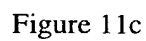


Figure 11b





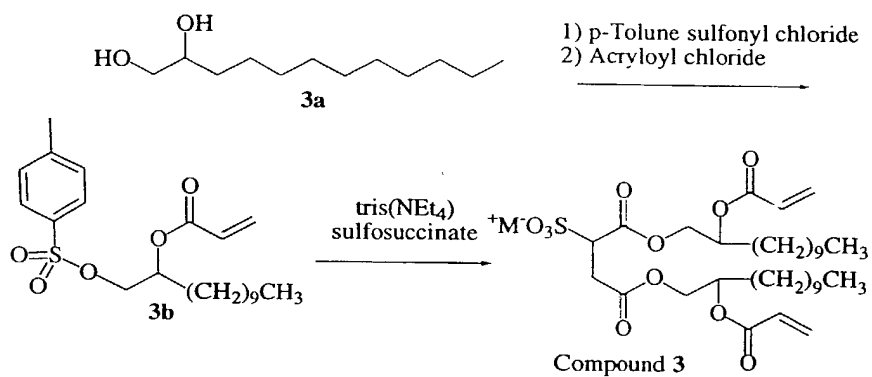


Figure 11d

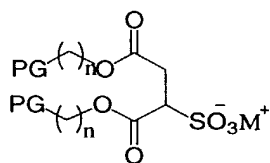


Figure 12

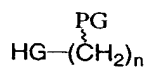


Figure 13

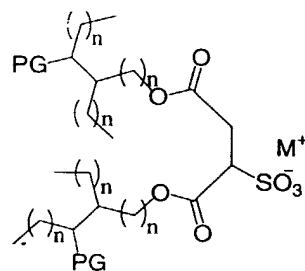


Figure 14

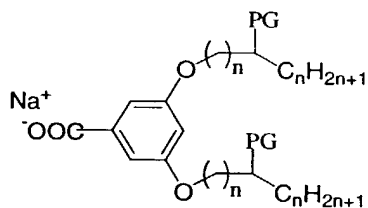


Figure 15

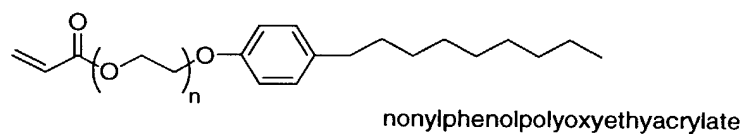
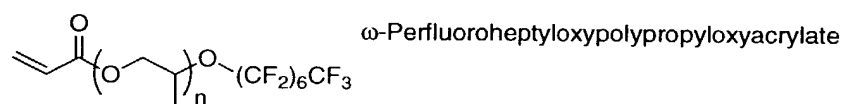
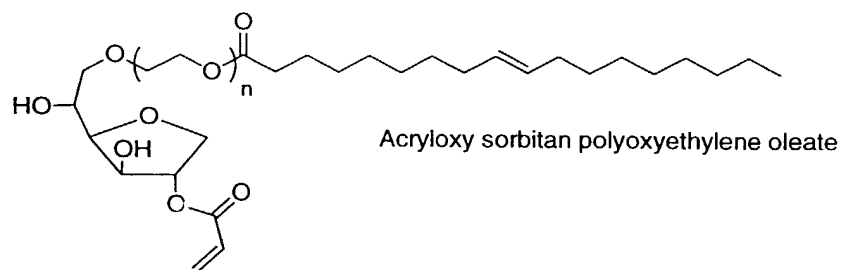


Figure 16

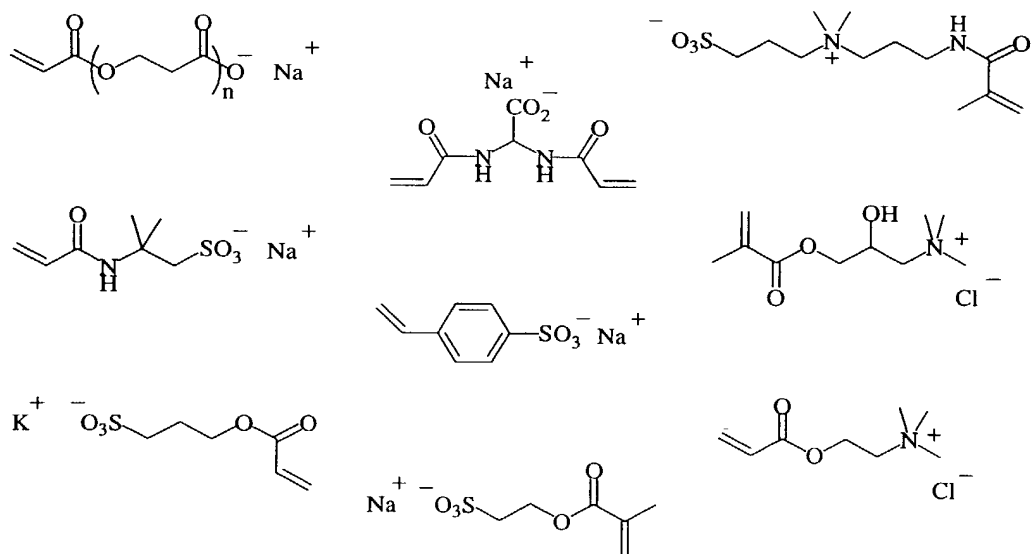


Figure 17

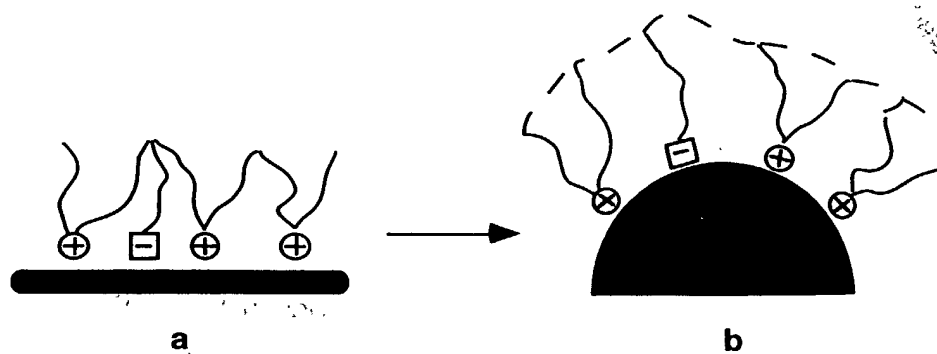


Figure 18

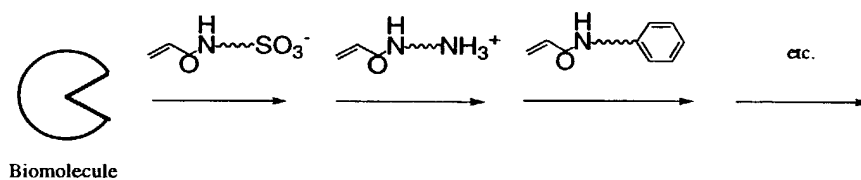
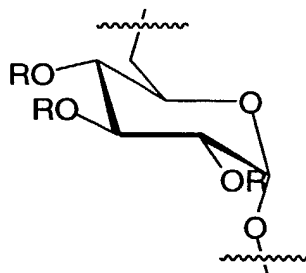


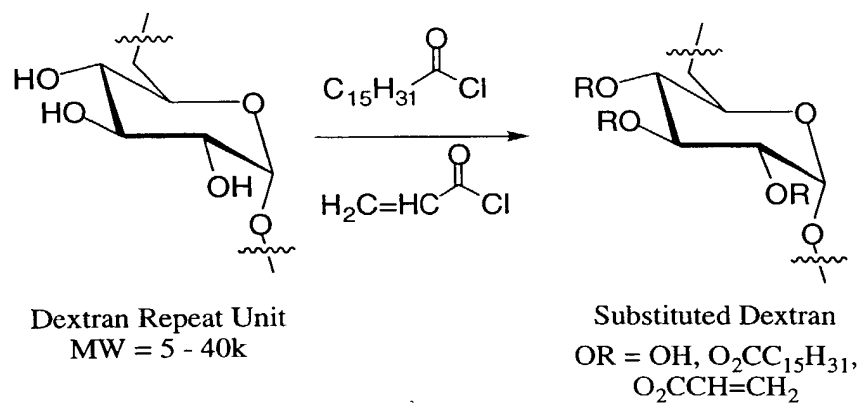
Figure 19a



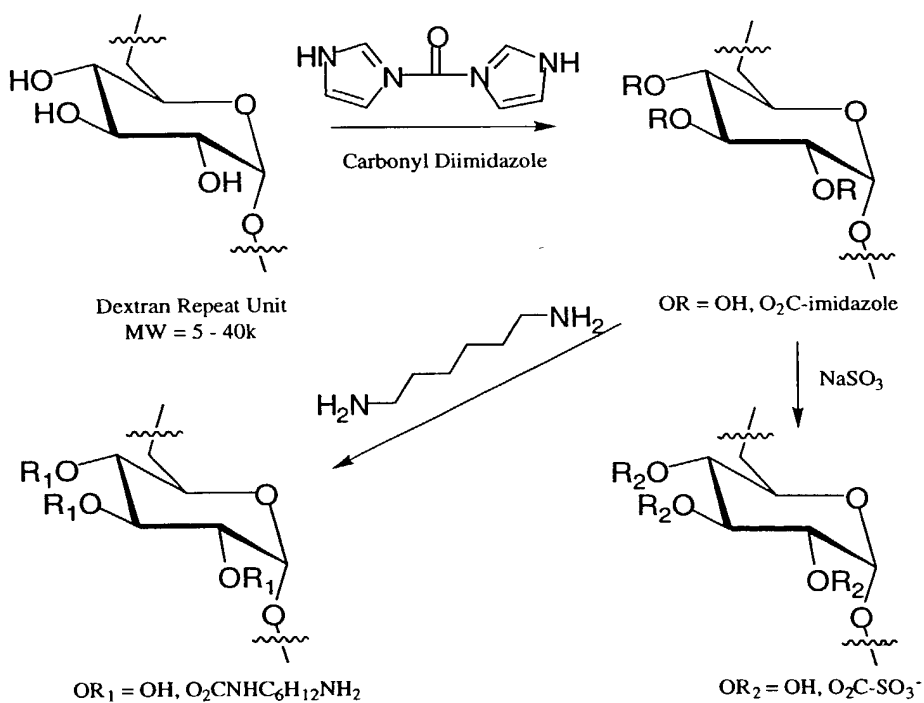
### Substituted Dextrans

OR = OH,  $\text{O}_2\text{CC}_{15}\text{H}_{31}$ ,  
 $\text{O}_2\text{CCH}=\text{CH}_2$ ,  $\text{OSO}_3^-$ ,  
 $\text{O}_2\text{CNH}(\text{CH}_2)_6\text{NH}_3^+$ ,  
 $\text{O}_2\text{CNH}(\text{CH}_2)_6$ -aromatics

Figure 19b

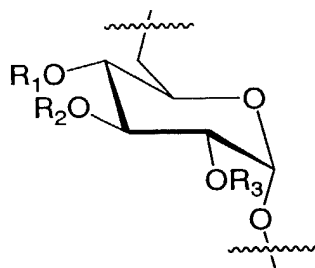


Carbohydrate based reactive surfactants



Addition of polar headgroups to polysaccharides

Figure 19c



Formula 6

Figure 19d

40855837 408584

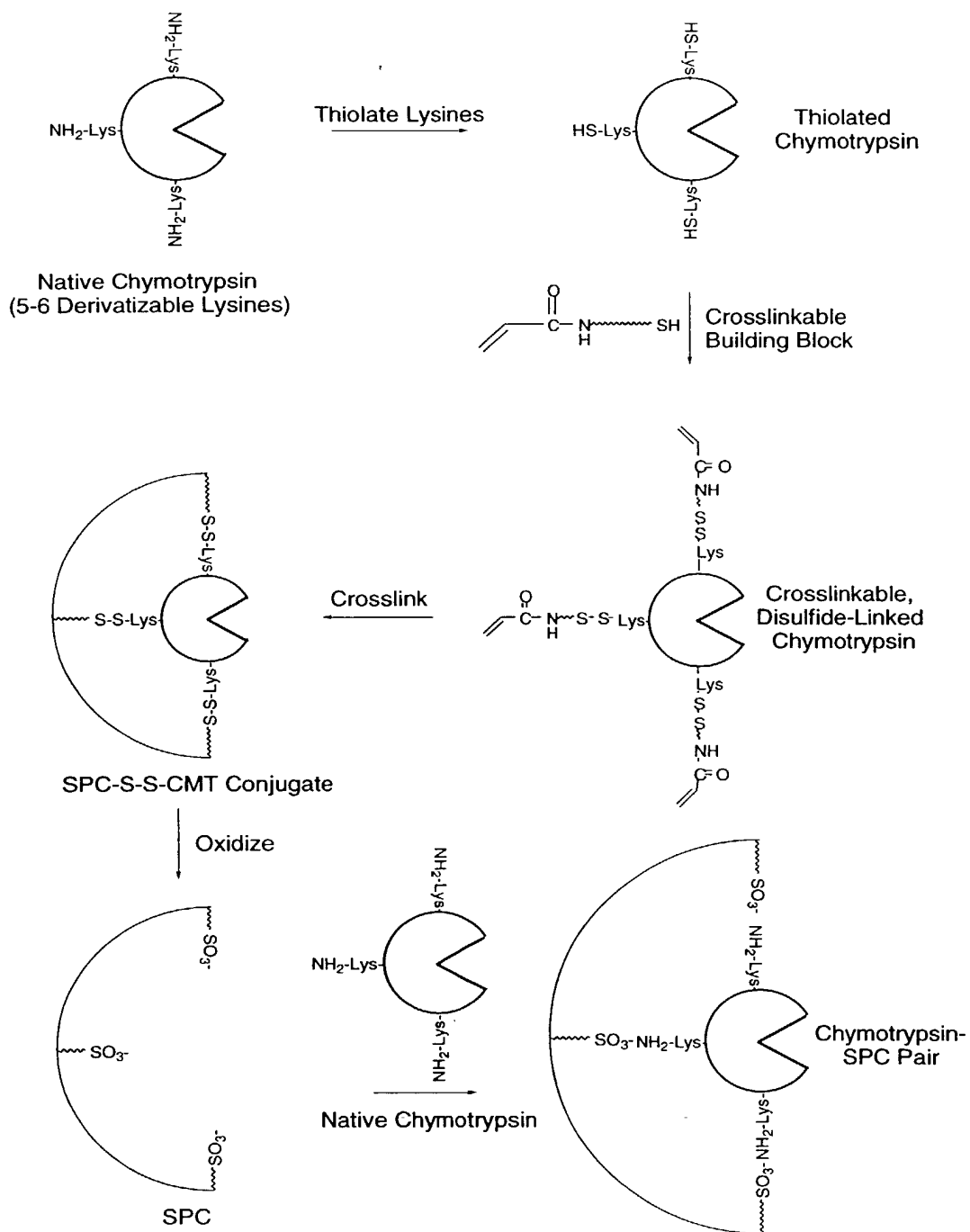


Figure 20a

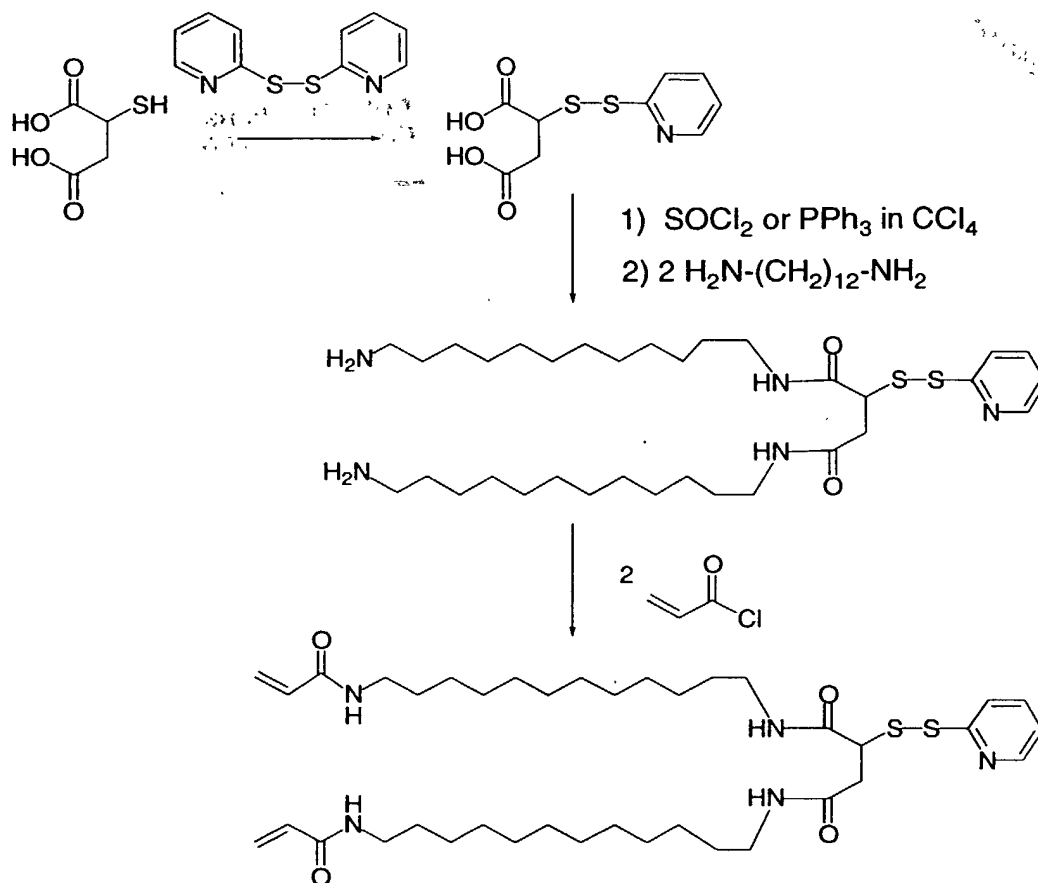


Figure 20b

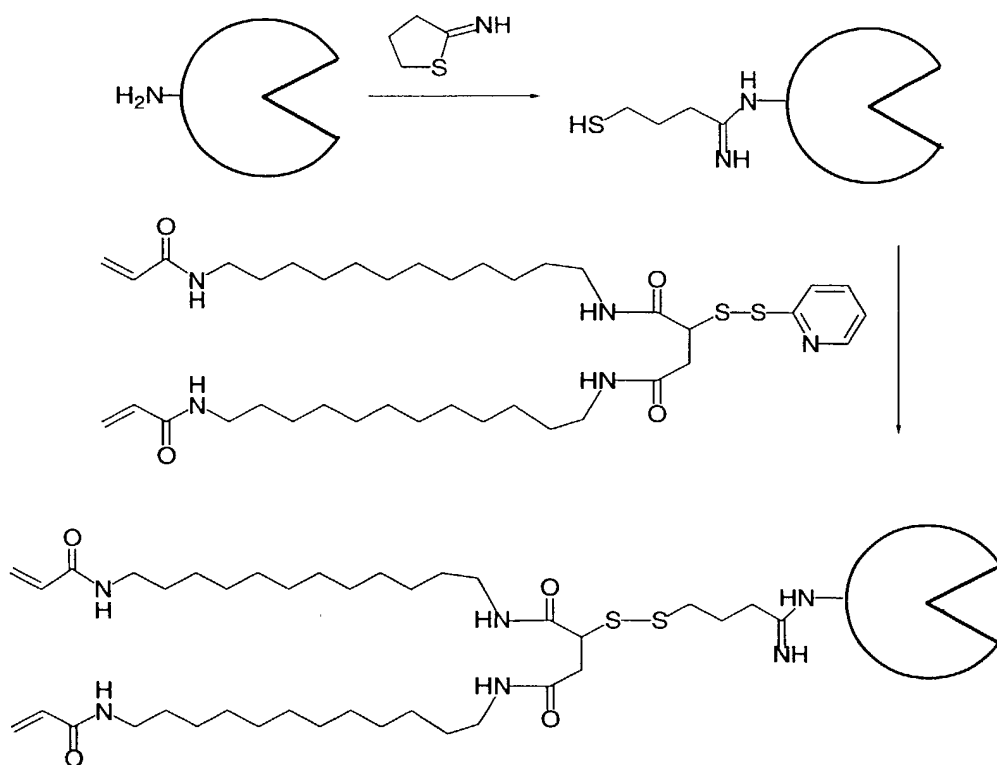


Figure 20c



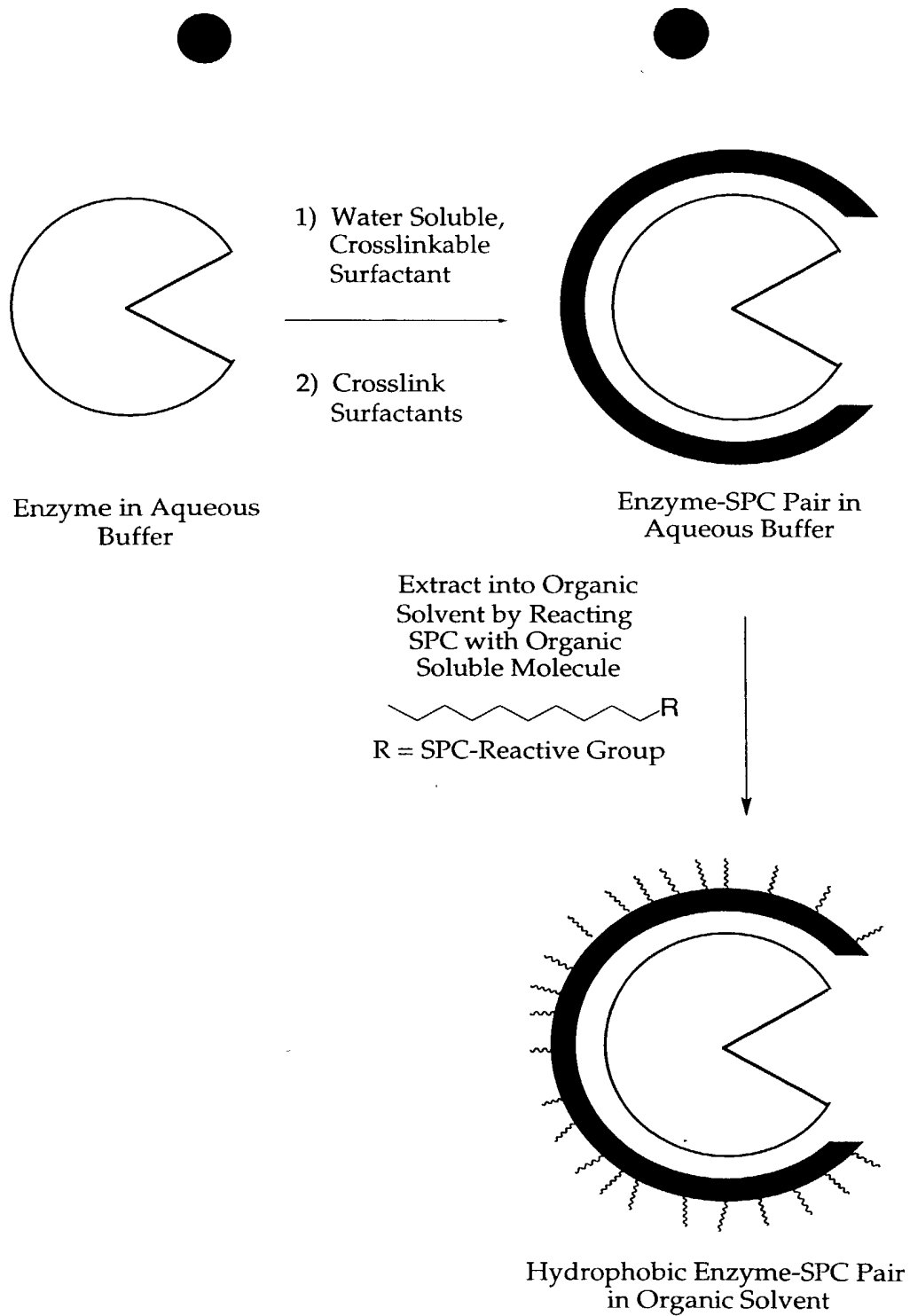


Figure 21

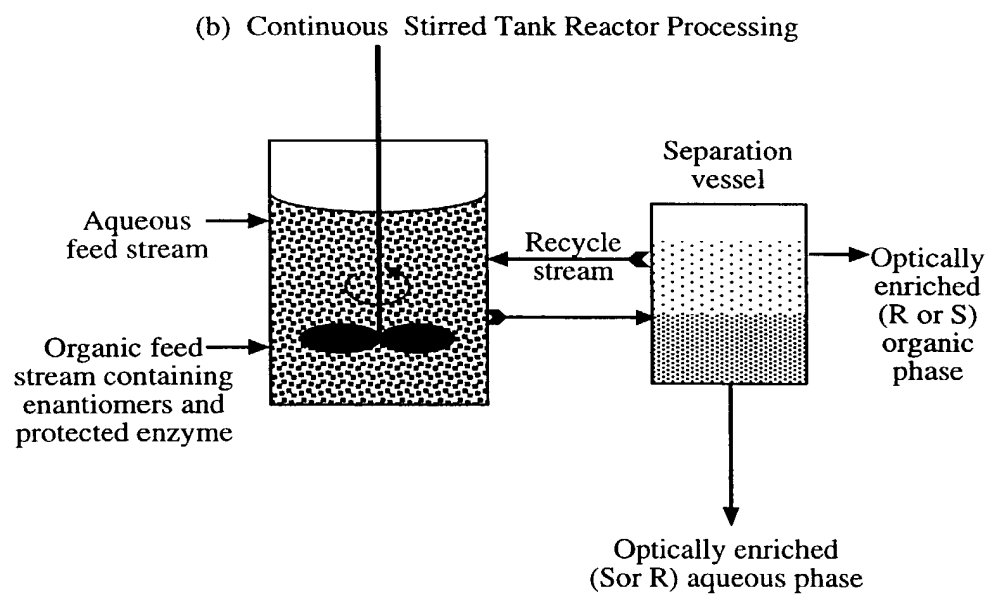
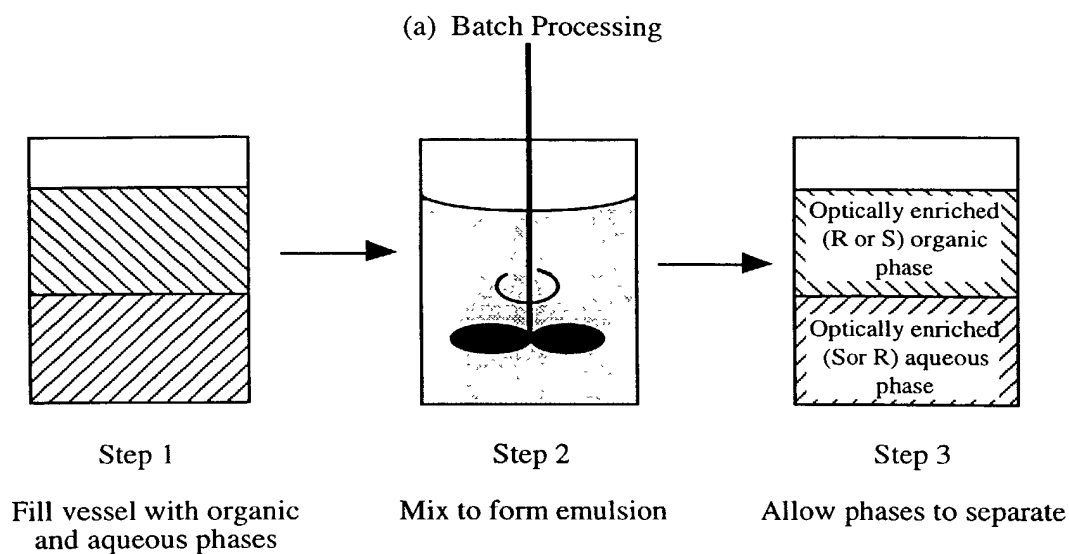


Figure 22

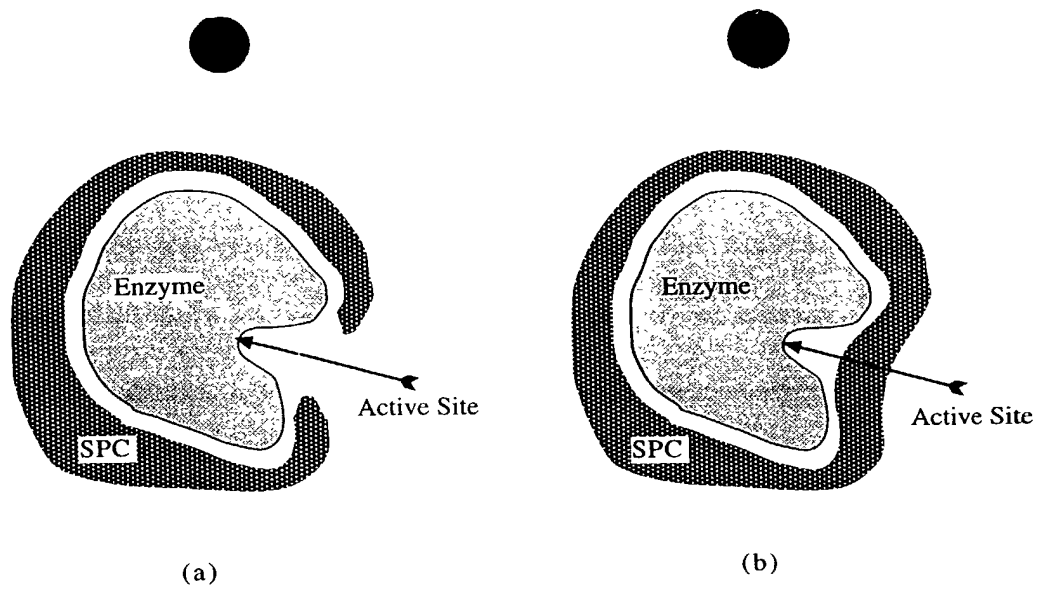


Figure 23

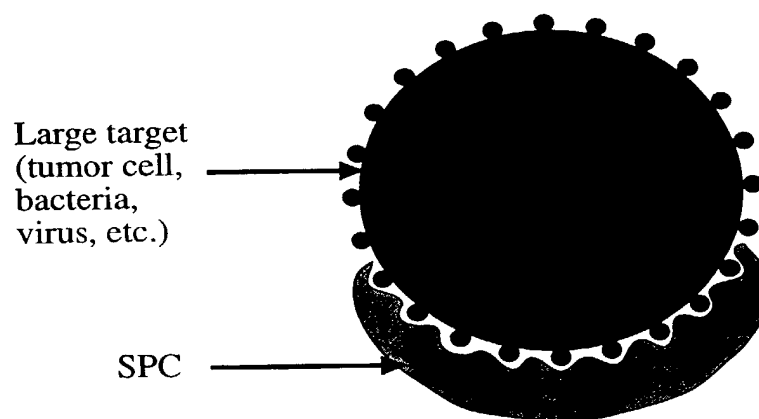


Figure 24

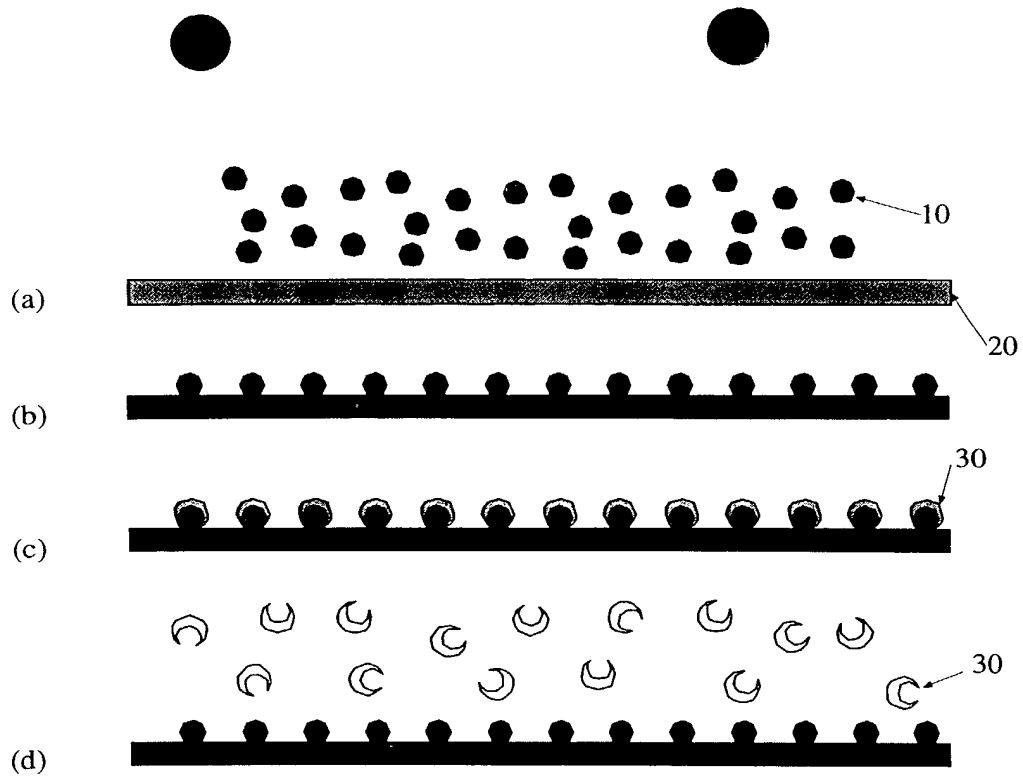


Figure 25

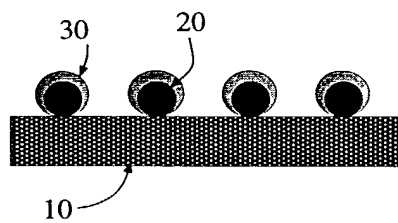


Figure 26

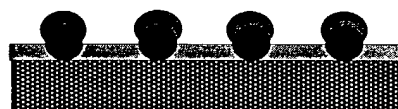


Figure 27

SCANNED # 14

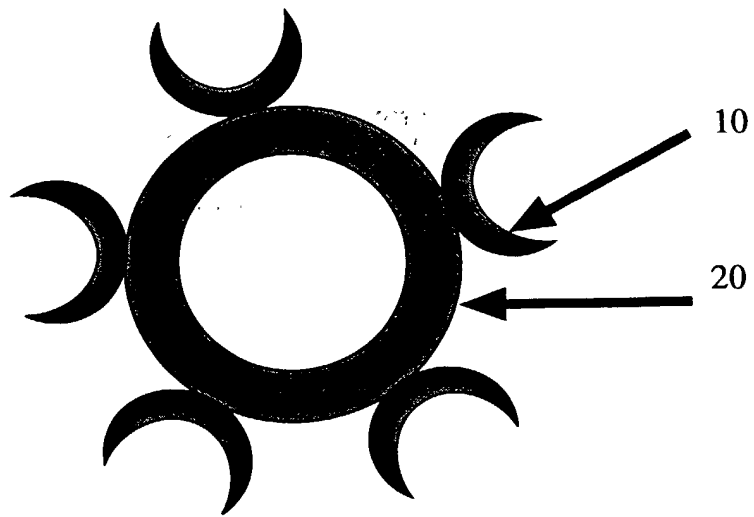


Figure 28

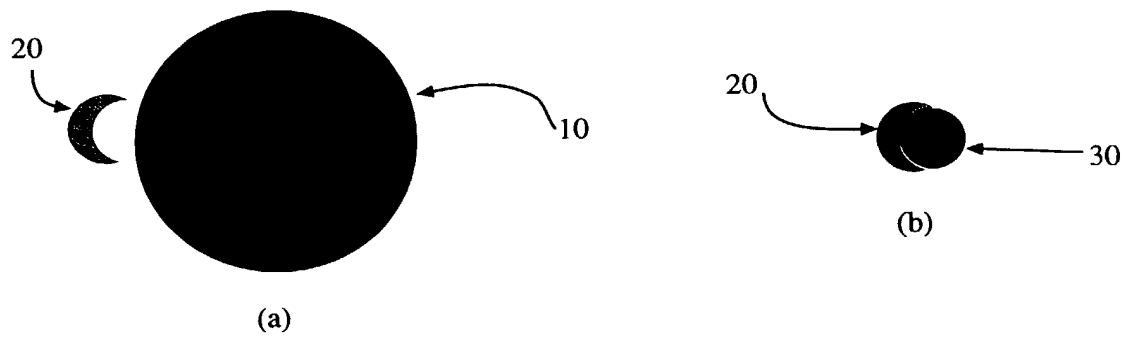
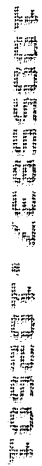
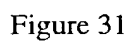
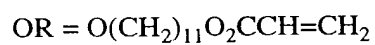
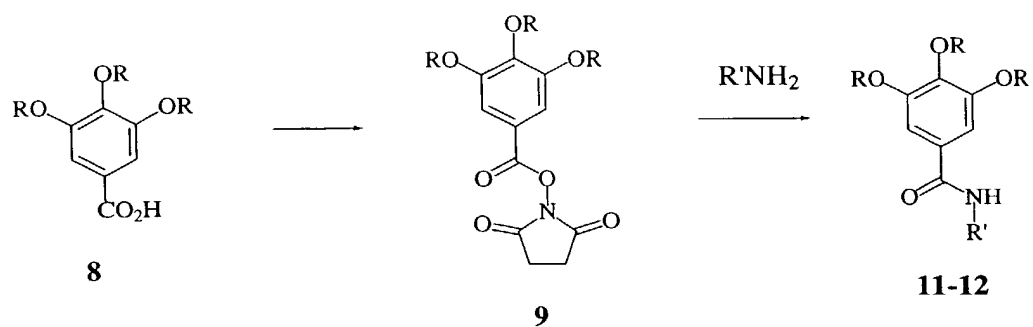


Figure 29


$$\text{R}'\text{NH}_2$$




### Exemplary Compounds **11** and **12**

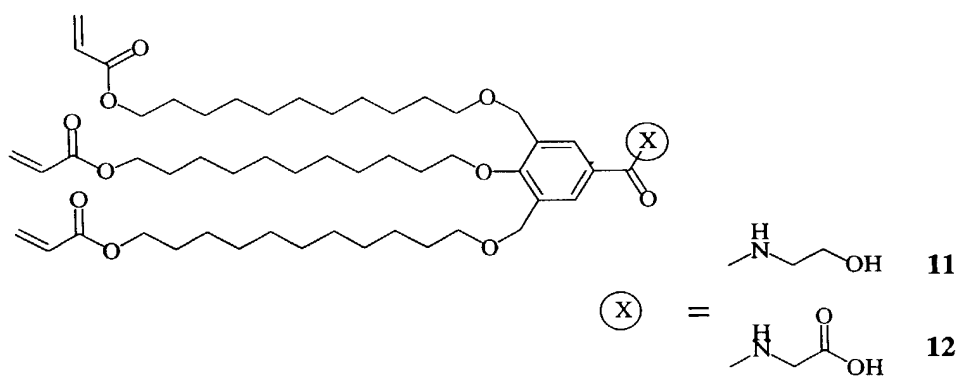
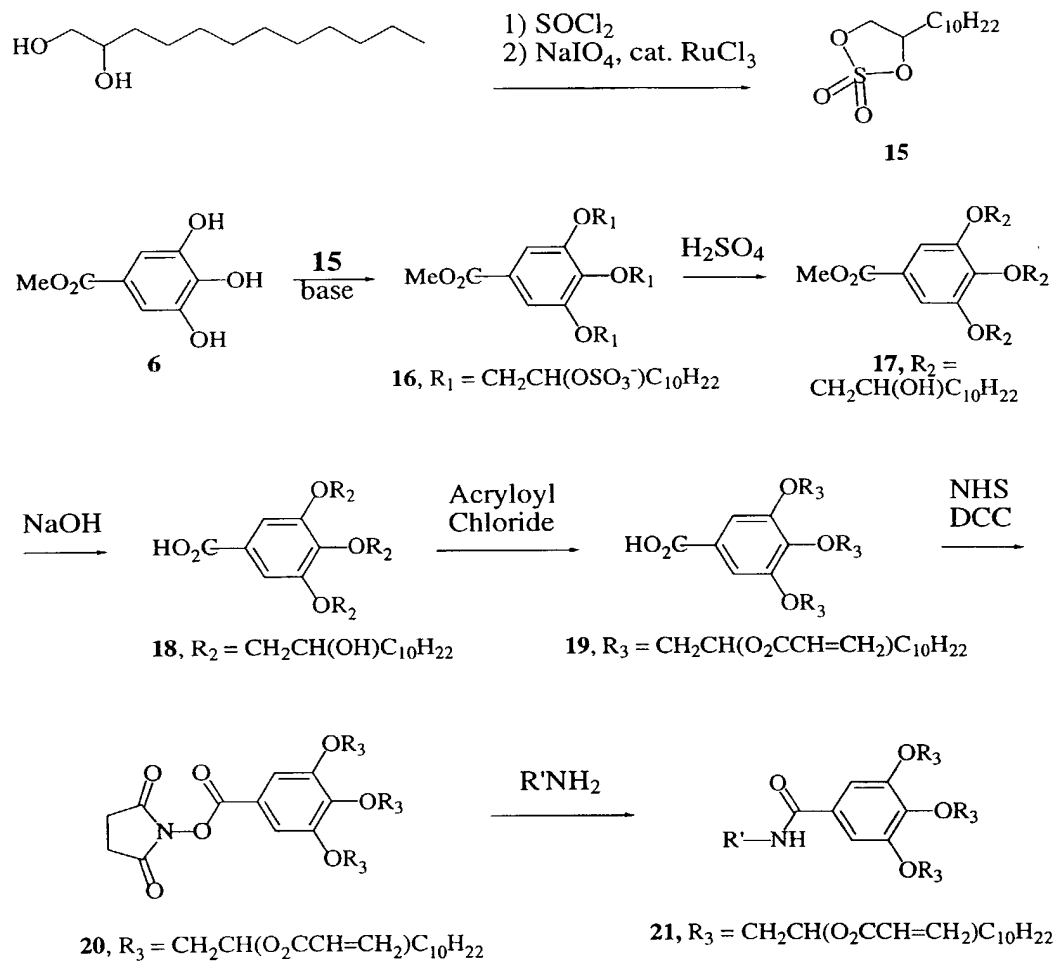
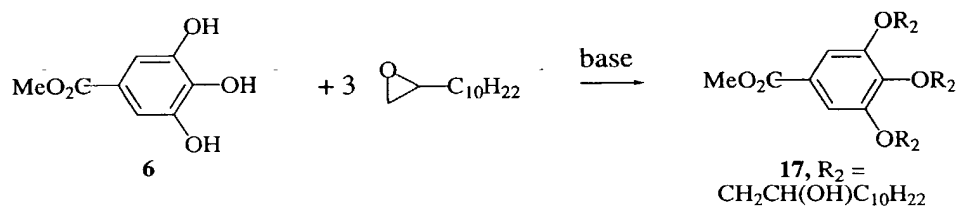


Figure 32



(a)



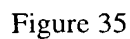
(b)

Figure 33




$$\begin{array}{c}
 \text{HO}_2\text{C}-\text{C}_6\text{H}_2(\text{CH}_3)_3 \xrightarrow{\text{NBS}} \text{HO}_2\text{C}-\text{C}_6\text{H}_2(\text{CH}_2\text{Br})_3 \xrightarrow[\text{Li}_2\text{CuCl}_4]{\text{BrMg}-(\text{CH}_2)_{11}-\text{Cl}} \\
 \text{HO}_2\text{C}-\text{C}_6\text{H}_2(\text{R}_1)_3 \xrightarrow{\text{NaO}_2\text{CCH}=\text{CH}_2} \text{HO}_2\text{C}-\text{C}_6\text{H}_2(\text{R}_2)_3 \xrightarrow[\text{DCC}]{\text{NHS}}
 \end{array}$$

$\text{R}_1 = (\text{CH}_2)_{12}-\text{Cl}$ 
 $\text{R}_2 = (\text{CH}_2)_{12}-\text{O}_2\text{CCH}=\text{CH}_2$



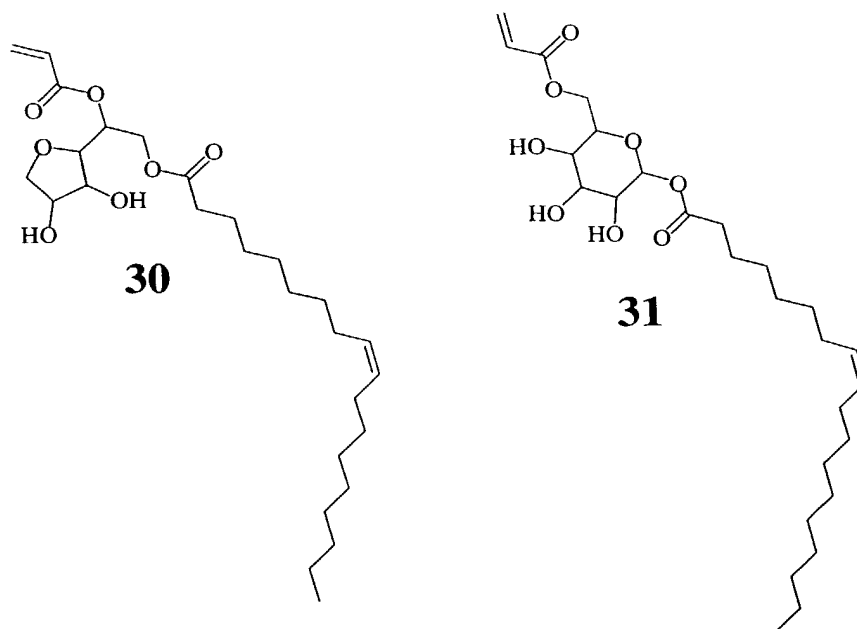


Figure 36

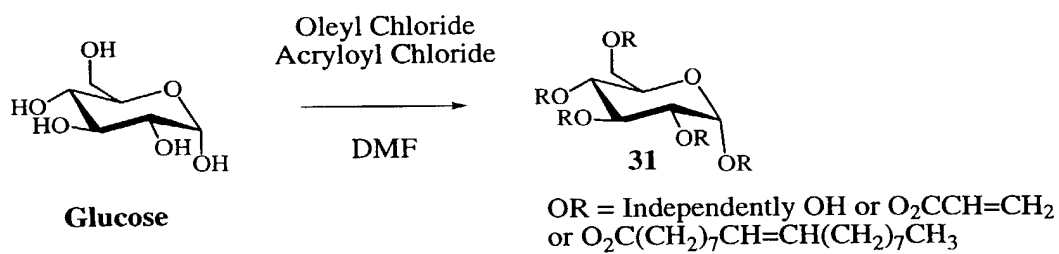


Figure 37

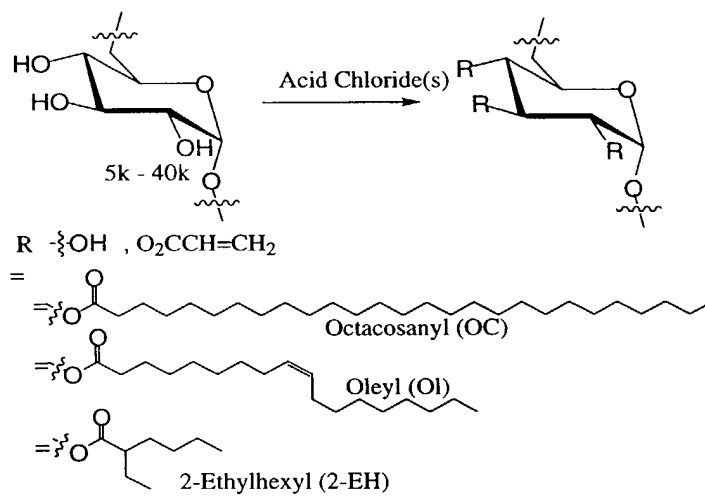


Figure 38

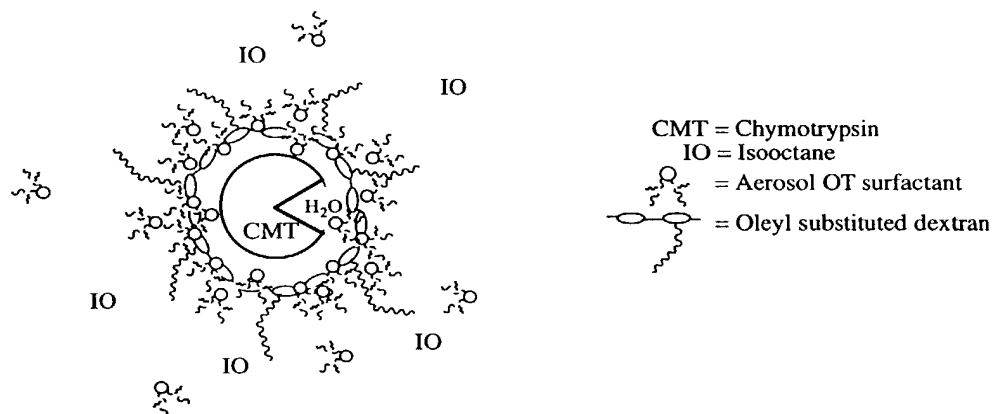
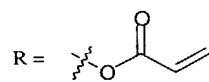
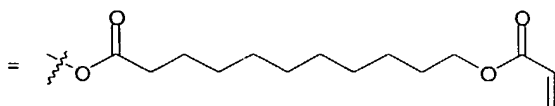


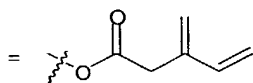
Figure 39



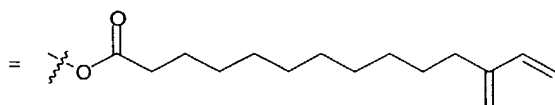
Acrylate Tail (Ac)



Acrylate Hydrophobic Tail (AcH)



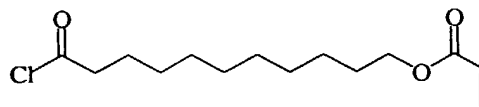
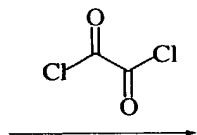
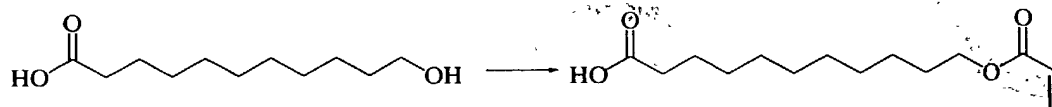
Butadiene Tail (Bd)



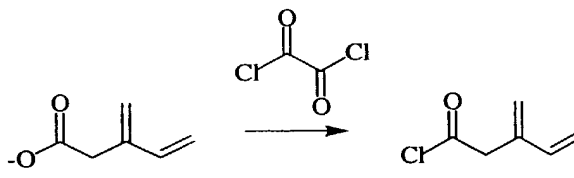
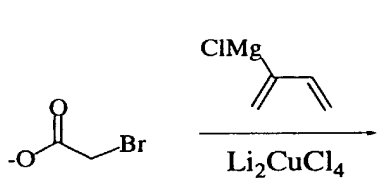
Butadiene Hydrophobic Tail (BdH)

Figure 40

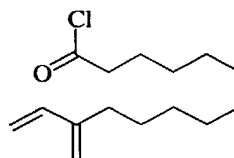
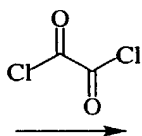
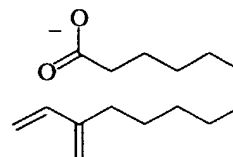
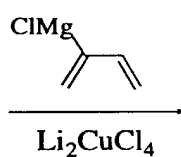
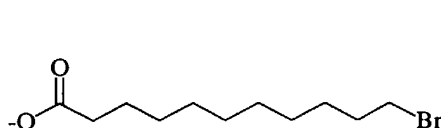
SCANNED, 1/4



Acrylate with Hydrophobic Spacer



Butadiene Acid Chloride



Butadiene Acid Chloride with Hydrophobic Spacer

Figure 41

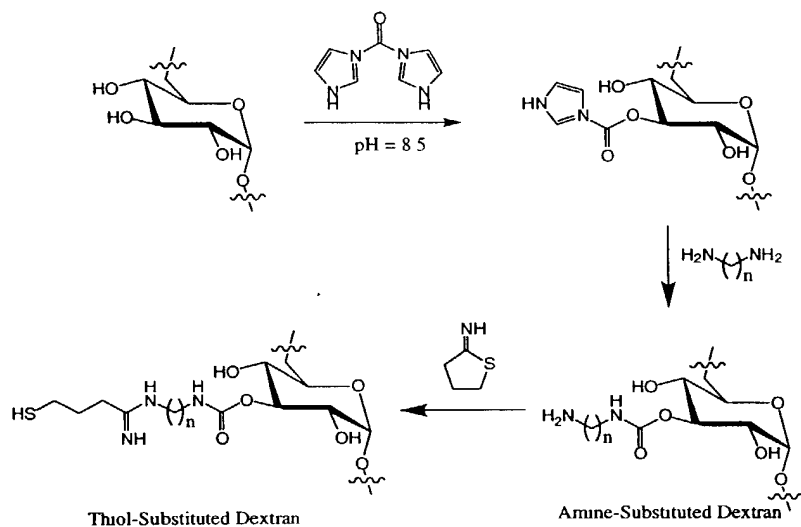
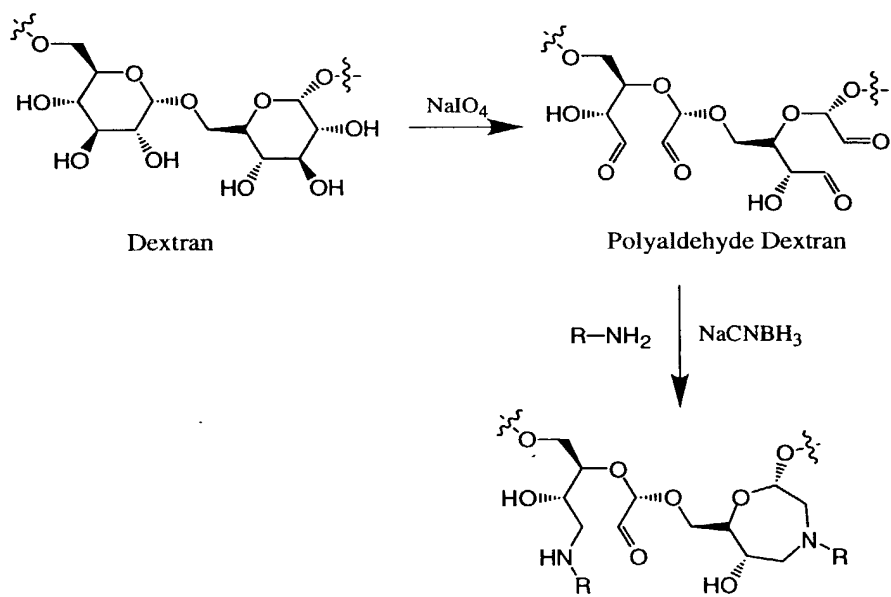
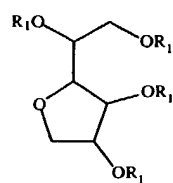


Figure 42



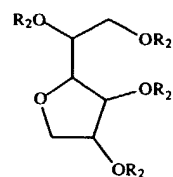
Secondary and Tertiary Amine Formation

Figure 43



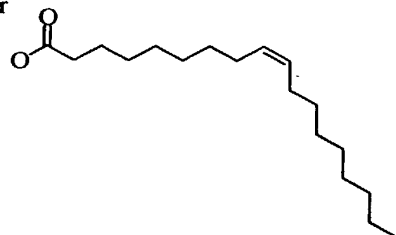
Acryloyl Chloride

$\xrightarrow{\text{CH}_2\text{Cl}_2}$



30

OR<sub>1</sub> = independently  
OH or



OR<sub>2</sub> = independently  
OH or  
O<sub>2</sub>CCH=CH<sub>2</sub> or  
O<sub>2</sub>C(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub>

Figure 44